

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Humulus lupulus*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
30	(+)-CATECHIN	Fruit	--	--		
38	(-)-EPICATECHIN	Fruit	--	--		
0	1,2-EPI-THIOHUMULENE	Essential Oil	--	--		
0	12AROMADENDRINE-EPOXIDE	Fruit	20	20		
0	2',6'-DIMETHOXY-4,4'-DIHYDROXY-CHALCONE	Fruit	75	75		
0	2,2-DIMETHYL-5-OXO-2,5-DIHYDRO-FURAN	Flower	--	--		
0	2,3,4-TRITHIAPENTANE	Fruit	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	2,3,4-TRITHIAPENTANE	Essential Oil	--	--		
0	2,3,5-TRITHIAHEXANE	Essential Oil	--	--		
0	2-DECANONE	Plant	--	--		
0	2-DODECANONE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-METHYL-5-PENTENYLFURAN	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYL-5-THIA-HEX-2-ENE	Essential Oil	--	--		
0	2-METHYL-BUT-3-EN-2-OL	Fruit	--	1500		
0	2-METHYL-BUT-3-EN-2-OL	Inflorescence	--	--		
0	2-METHYL-BUT-B-EN-2-OL	Fruit	--	1000		
0	2-METHYL-BUTYL-2-METHYL-BUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYL-BUTYL-ISOVALERATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYL-PROPAN-1-OL	Flower	--	--		
0	2-METHYL-PROPANIC-ACID	Flower	--	--		
0	2-METHYL-THIA-5-HEX-2-ENE	Essential Oil	--	--		
0	2-METHYLBUTYLHEPTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-METHYLBUTYLHEXANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYLBUTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYLBUTYLPROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYLPROPYL-2-METHYL-BUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYLPROPYL-ISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-METHYLPROPYLPENTENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-NONANON	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-PENTADECANONE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-TETRADECANON	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	2-TRIDECANONE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	2-UNDECANON	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	3'(ISOPRENYL)-2',4'-DIHYDROXY-4,6'-DIMETHOXY-CHALCONE	Fruit	--	28		
0	3-(4-METHYL-PENT-3-ENYL)-3-THIOPHENE	Essential Oil	--	--		
0	3-(4-METHYL-PENT-3-ENYL)-3-THIOPHENE	Fruit	--	--		
0	3-METHYL-BUT-2-EN-1-AL	Flower	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	3-METHYL-BUTAN-1-OL	Flower	--	--		
0	3-METHYL-BUTAN-2-ONE	Flower	--	--		
0	3-METHYL-BUTANOIC-ACID	Flower	--	--		
0	3-METHYLBUTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	4,5-EPITHIOCARYOPHYLLENE	Fruit	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	4,5-EPITHIOCARYOPHYLLENE	Essential Oil	--	--		
0	4-(4-METHYL-PENT-3-ENYL)1,2-DITHIACYCLOHEX-4-ENE	Essential Oil	--	--		
0	4-(4-METHYL-PENT-3-ENYL)3,6-DIHYDRO-1,2-DITHIINE	Fruit	--	--		
0	4-DEOXYCOHUMULONE	Plant	--	--		
0	4-DEOXYHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	4-DEOXYHUMULONE	Plant	--	--		
0	4-DEOXYHUMULONE	Inflorescence	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	5-(4-METHYL-5-PENT-3-ENYL)1,2,3-TRITHIACYCLOHEPT-5-ENE	Essential Oil	--	--		
0	5-(4-METHYL-PENT-3-ENYL)-1,2,3-TRITHIACYCLOHEPT-5-ENE	Essential Oil	--	--		
0	5-ALPHA-ERGOSTAN-3-ONE	Stem	--	--		
0	5-ALPHA-STIGMAST22-EN-3-ONE	Stem	--	--		
0	5-ALPHA-STIGMASTAN-3-ONE	Stem	--	--		
0	6-(4-METHYL-PENT-3-ENYL)-1,2,3,4-TETRATHIACYCLOOCT-6-ENE	Essential Oil	--	--		
0	6-(4-METHYL-PENT-3-ENYL)1,2,3,4-TETRATHIACYCLOOCT-6-ENE	Essential Oil	--	--		
0	6-ISO-PENTENYL-NARINGENIN	Resin, Exudate, Sap	--	2375		
0	8,9-EPI-THIOHUMULENE	Essential Oil	--	--		
3	ACETONE	Flower	--	--		
3	ACETONE	Inflorescence	--	--		
3	ACETONE	Fruit	--	--		
0	ACYLPHLOROGLUCIDES	Fruit	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	ADHULUPONE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	ADHUMULONE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	ADHUMULONE	Plant	--	--		
2	ADHUMULONE	Inflorescence	--	--		
2	ADHUMULONE	Strobilus	--	--		
2	ADLUPULONE	Fruit	--	--		
2	ADLUPULONE	Plant	--	--		
2	ADLUPULONE	Inflorescence	--	--		
2	ADLUPULONE	Strobilus	--	--		
0	ALLO-AROMADENDRENE	Fruit	77	77	-0.679784818689129	
2	ALLO-CYMENE	Essential Oil	--	--		
0	ALLOAROMADENDRENE-EPOXIDE	Fruit	--	12		
0	ALPHA-ALANINE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ALPHA-AMINO-ADIPIC-ACID	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ALPHA-CADINENE	Fruit	10	10		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ALPHA-CADINOL	Fruit	15	15		
0	ALPHA-CARYOPHYLLENE	Essential Oil	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	ALPHA-COPAENE	Fruit	15	15	-0.6690795871823009	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ALPHA-CORACALENE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ALPHA-CUBEBENE	Plant	15	15	-0.508000508000762	
0	ALPHA-EUDESMOL	Fruit	65	65		
0	ALPHA-GUAIENCE	Fruit	16	16		
2	ALPHA-HUMULENE	Fruit	--	--		
2	ALPHA-HUMULENE	Essential Oil	--	400000	3.136732670792344	
0	ALPHA-MUUROLENE	Fruit	35	35	-0.6984779293060631	
28	ALPHA-PINENE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	ALPHA-PINENE	Essential Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	ALPHA-SELINENE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
23	ALPHA-TERPINEOL	Essential Oil	--	--		
32	ALPHA-TOCOPHEROL	Strobilus	--	--		
0	ALPHA-YLANGENE	Fruit	5	5	-0.6962565325467188	
5	ALUMINUM	Fruit	4.7	4.7	-0.22215407810898732	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
5	ALUMINUM	Flower	0.9	4.7	-1.6412298738578974	
0	AMMONIA	Flower	10660	10660		
0	AMMONIA	Inflorescence	--	--		
0	AMMONIA(NH3)	Flower	--	10660	-0.02903630467319503	
14	ARGININE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	AROMADENDRINE	Fruit	98	98		
112	ASCORBIC-ACID	Fruit	1782	1782	-0.17368960442994769	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
112	ASCORBIC-ACID	Flower	332	1782	-0.2861764494395231	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ASH	Fruit	70000	100000	1.1222069856554242	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ASH	Flower	15996	86000	0.3979087975090442	
2	ASPARAGINE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASPARAGINIC-ACID	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
7	ASTRAGALIN	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	BETA-ALANINE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
53	BETA-CAROTENE	Fruit	2.4	2.4	-0.1461614723719775	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
53	BETA-CAROTENE	Flower	0.5	2.4	-0.5854376351911411	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-CARYOPHYLLENE	Fruit	520	520	-0.4871544215252672	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	BETA-CARYOPHYLLENE	Essential Oil	--	--		
0	BETA-CUBEBENE	Fruit	5	5	-0.7073479088132132	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
13	BETA-EUDESMOL	Fruit	60	60		
0	BETA-FARNESENE	Fruit	35	35	-1	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
2	BETA-MYRCENE	Essential Oil	420000	580000	1.706327614199298	
13	BETA-PINENE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
13	BETA-PINENE	Essential Oil	--	--		
13	BETA-PINENE	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	BETA-SELINENE	Fruit	150	150	1	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	BETA-SELINENE-EPOXIDE-I	Fruit	2	2		
47	BETA-SITOSTEROL	Plant	--	--		
0	BICYCLOGERMACRENE	Fruit	10	10		
0	BUTYLATED-HYDROXY-TOLUENE	Strobilus	--	--		
0	BUTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	CADALENE	Fruit	2	2		
102	CAFFEIC-ACID	Plant	--	--		
0	CALAMENENE	Fruit	2	2	-0.6174844953736063	
28	CALCIUM	Fruit	6222	6222	0.545912951542125	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
28	CALCIUM	Flower	1157	6220	0.12434337429806096	
2	CAMPESTEROL	Stem	--	--		
8	CANNABIDIOL	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Fruit	770000	770000	-0.06888495104483651	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	CARBOHYDRATES	Flower	143220	770000	0.5901036049686585	
0	CARYOLAN-1-OL	Fruit	5	5		
0	CARYOPHYLLA-3(12)-6-DIEN-4-OL	Essential Oil	--	--		
0	CARYOPHYLLA-3(8)-13-DIEN-5-ALPHA-OL	Essential Oil	--	--		
0	CARYOPHYLLA-3(8)-13-DIEN-5-OL	Essential Oil	--	--		
0	CARYOPHYLLA-3-8(13)-DIEN-5-BETA-OL	Essential Oil	--	--		
0	CARYOPHYLLA-4(12)-8(13)-DIEN-5-BETA-OL	Essential Oil	--	--		
31	CARYOPHYLLENE	Plant	--	--		
6	CARYOPHYLLENE-EPOXIDE	Fruit	24	24		
8	CARYOPHYLLENE-OXIDE	Essential Oil	--	--		
43	CATECHIN	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	CELLULOSE	Stem	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CEROTIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
77	CHLOROGENIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
20	CHOLINE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
24	CHROMIUM	Fruit	7	0.7	-0.4093125277624259	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
24	CHROMIUM	Flower	0.1	0.7	-1.0719973021906593	
53	CITRAL	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
53	CITRAL	Essential Oil	--	--		
2	COBALT	Fruit	24	2.4	-0.24457299524657042	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
2	COBALT	Flower	0.5	2.4	-0.41850902895210695	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	COHUMULONE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	COHUMULONE	Strobilus	--	--		
2	COHUMULONE	Plant	--	--		
2	COHUMULONE	Inflorescence	--	--		
0	COLUPDOX	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	COLUPOX	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
3	COLUPULONE	Fruit	--	--		
3	COLUPULONE	Plant	--	--		
3	COLUPULONE	Strobilus	--	--		
3	COLUPULONE	Inflorescence	--	--		
0	CUBENOL	Fruit	17	17	-1	
7	CYANIDIN	Plant	--	--		
1	DECAN-1-AL	Essential Oil	--	--		
9	DELPHINIDIN	Plant	--	--		
9	DELTA-CADINENE	Fruit	60	60	-0.4584564235430147	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	DELTA-CADINOL	Fruit	36	36	1	
0	DELTA-GUAIENE	Fruit	20	20		
0	DELTA-SELINENE	Fruit	55	55		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	DEMETHYL-XANTHOHUMOL	Fruit	--	--		
0	DEMETHYL-XANTHOHUMOL	Strobilus	--	--		
0	DEOXYCOHUMULONE	Plant	--	--		
0	DEOXYHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DEOXYHUMULONE	Plant	--	--		
2	DIETHYL-AMINE	Flower	--	3.1		
2	DIETHYL-AMINE	Inflorescence	3.1	3.1		
2	DIMETHYL-AMINE	Flower	--	1.4	-0.9999999999999997	
2	DIMETHYL-AMINE	Inflorescence	1.4	1.4		
1	DIMETHYLVINYLCARBINOL	Flower	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	DIPENTENE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	EO	Flower	2000	10000	-0.09040057685018825	
0	EO	Fruit	3000	10000	-0.625591783140096	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
0	EO	Seed	10000	30000	-0.17124289278893168	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
40	EPICATECHIN	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	EPICUBENOL	Fruit	13	13	-1	
0	EPIGLOBULOL	Fruit	5	5		
3	ESTRADIOL	Fruit	--	--		
8	ESTRONE	Fruit	--	--		
0	ETHYL-AMINE	Flower	--	5.2		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ETHYL-AMINE	Inflorescence	--	5.2		
0	ETHYL-HEPTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ETHYL-METHYL-AMINE	Flower	--	3.7		
0	ETHYL-METHYL-AMINE	Inflorescence	3.7	3.7		
76	EUGENOL	Essential Oil	--	--		
2	FARNESENE	Essential Oil	--	--		
17	FARNESOL	Fruit	17	17	-0.6852064014620585	
17	FARNESOL	Essential Oil	--	--		
0	FAT	Fruit	29000	29000	-0.4197524224718951	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	FAT	Flower	5394	29000	-0.45281178898821745	
61	FERULIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	FIBER	Fruit	72000	72000	-0.6574998263757718	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FIBER(CRUDE)	Flower	--	72000	-0.03302065882072333	
0	FIBER(DIETARY)	Flower	--	342000	0.3333778507865993	
12	FORMALDEHYDE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	FRIEDELIN	Stem	--	--		
8	FRUCTOSE	Fruit	15000	20000	-0.617530686348938	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	GALLOCATECHIN	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
22	GAMMA-AMINOBUTYRIC-ACID	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	GAMMA-CADINENE	Fruit	60	60	0.07091843089178781	
0	GAMMA-CALOCORENE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GAMMA-ELEMENE	Fruit	16	16	-0.7367653332135127	
0	GAMMA-EUDESMOL	Fruit	18	18		
0	GAMMA-IONONE	Essential Oil	--	--		
20	GAMMA-LINOLENIC-ACID	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	GAMMA-MUROLENE	Fruit	170	170	1	
8	GENTISIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GERANIC-ACID-METHYL-ESTER	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	GERANIOL	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
35	GERANIOL	Essential Oil	--	--		
5	GERANYL-ACETATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GERANYL-ISOBUTYRATE	Essential Oil	--	--		
2	GERANYL-PROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GERMACRATRIENE	Essential Oil	--	--		
0	GERMACRENE-B	Fruit	105	105	-1	
2	GERMACRENE-D	Fruit	15	15	-1	
0	GLOBULOL	Fruit	27	27	-1	
7	GLUCOSE	Fruit	15000	20000	-0.6828399338718176	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
9	HEDERAGENIN	Stem	--	--		
0	HELUPONE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
1	HEPTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HEPTYLPROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HEXYL-ISOBUTYRATE	Plant	--	--		
0	HEXYLPROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	HISTIDINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HULUPINIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	HULUPONE	Fruit	21000	39000		
2	HUMULENE	Fruit	1200	1200	1.4104326443879445	
2	HUMULENE	Plant	--	--		
2	HUMULENE	Essential Oil	--	--		
2	HUMULENE	Flower	--	--		
0	HUMULENE-DIEPOXIDE-A	Fruit	--	--		
0	HUMULENE-DIEPOXIDE-A	Essential Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HUMULENE-EPOXIDE	Essential Oil	--	--		
0	HUMULENE-EPOXIDE-I	Fruit	7	7		
0	HUMULENE-EPOXIDE-II	Fruit	71	71		
0	HUMULENE-EPOXIDE-II	Essential Oil	--	--		
0	HUMULENE-MONOEPoxide-I	Fruit	--	--		
0	HUMULENE-MONOEPoxide-I	Essential Oil	--	--		
0	HUMULENOL-II	Fruit	15	15		
0	HUMULENOL-II	Essential Oil	--	--		
0	HUMULINONE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	HUMULOL	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
16	HUMULONE	Flower	--	--		
16	HUMULONE	Plant	--	--		
16	HUMULONE	Strobilus	--	5000		
16	HUMULONE	Fruit	--	--		
16	HUMULONE	Inflorescence	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
6	IRON	Flower	--	--		
0	ISOADHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOCOHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	ISOHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ISOLEUCINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOMALTOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ISOPARAFFIN	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOPENTENYL-NARANGENIN	Resin, Exudate, Sap	2375	2375		
0	ISOPENTYL-AMINE	Flower	--	0.4		
0	ISOPENTYL-AMINE	Inflorescence	0.4	0.4		
0	ISOPREHUMULONE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	ISOPRENE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	ISOQUERCITRIN	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	ISOVALERIC-ACID	Essential Oil	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
6	ISOXANTHOHUMOL	Fruit	1837	1838		
6	ISOXANTHOHUMOL	Resin, Exudate, Sap	--	42500		
0	JUNIPER-CAMPHOR	Fruit	13	13		
75	KAEMPFEROL	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	KAEMPFEROL-3-O-RUTINOSIDE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	KAEMPFEROL-3-RHAMNODIGLUCOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	KAEMPFEROL-3-RHAMNOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KILOCALORIES	Fruit	2880	2880	-1.1855236651643823	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	LEDOL	Fruit	8	8		
2	LEUCINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	LEUCOCYANIDIN	Flower	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
1	LEUCOCYANIDIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	LEUCODELPHINIDIN	Flower	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	LEUCODELPHINIDIN	Leaf	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
13	LIGNIN	Stem	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
60	LIMONENE	Fruit	--	--		
60	LIMONENE	Essential Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	LINALOL	Fruit	--	--		
53	LINALOOL	Fruit	--	--		
53	LINALOOL	Essential Oil	--	--		
0	LINALYL-ISONONYLATE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	LINALYL-PROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	LUPARENOL	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	LUPAROL	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	LUPARONE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	LUPULIN	Fruit	--	--		
9	LUPULONE	Flower	--	--		
9	LUPULONE	Inflorescence	--	--		
9	LUPULONE	Fruit	--	--		
9	LUPULONE	Strobilus	--	1300		
9	LUPULONE	Plant	--	--		
4	LYSINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	M-CAMPHORENE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
65	MAGNESIUM	Fruit	2380	2380	0.11588638233919304	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
65	MAGNESIUM	Flower	443	2380	-0.3123747135433822	
2	MALTOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	MANGANESE	Fruit	81	8.1	-0.3501271465981358	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
14	MANGANESE	Flower	1.5	8.1	-0.36407539187837923	
6	MASLINIC-ACID	Stem	--	--		
0	METACAMPHORENE	Essential Oil	--	--		
0	METHYL-2,5-DIMETHYLHEXENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-2-METHYLNONANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-4-METHYLHEX-2-ENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-5-METHYLHEXANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-6-METHYL-HEPTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-8-METHYLNONANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-9-METHYLDECANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	METHYL-AMINE	Flower	3.7	3.7	-1	
0	METHYL-DECA-4,8-DIENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-DECA-4-ENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-DECANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-DODECANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-GERANATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-GLUTAMIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-HEPTANOATE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-HEXANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	METHYL-NONANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	METHYL-NONYL-KETONE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	METHYL-OCTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-THIO-HUMULENE	Essential Oil	--	--		
0	METHYL-THIO-HUMULONE	Essential Oil	--	--		
0	METHYL-UNDECANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYL-UNDECENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYLDECENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLDODEC-8-EN-OATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLDODECADIENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLGLOUTAMINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLNONENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLTHIOHEPTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYLTHIOHEXANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLTHIOISOHEPTANOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLTRIDECENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	METHYLUNDECADIENOATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	MYRCENE	Fruit	--	--		
22	MYRCENE	Essential Oil	--	--		
22	MYRCENE	Strobilus	--	--		
22	MYRCENE	Plant	--	--		
22	MYRCENE	Inflorescence	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	MYRCENOL	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
34	MYRICETIN	Plant	--	--		
2	NEO-CHLOROGENIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
10	NEROL	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
10	NEROL	Essential Oil	--	--		
11	NEROLIDOL	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	NERYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	NERYLPROPIONATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	NH3	Inflorescence	--	--		
39	NIACIN	Fruit	--	435	5.003766647644194	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
39	NIACIN	Flower	81	435	3.352263480595522	
0	NONANYL	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	OCTYL-ACETATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	OCTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
64	OLEANOLIC-ACID	Stem	--	--		
25	P-COUMARIC-ACID	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
16	P-CYMENE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PALUSTROL	Fruit	7	7		
24	PECTIN	Fruit	120000	140000	1.0319193042672525	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PENTADECA-6,9-DIEN-2-ON	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTENYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PENTOSAN	Stem	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PENTYLISOBUTYRATE	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	PHENYLALANINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PHENYLETHANOL	Essential Oil	--	--		
0	PHLOBAPHENE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	PHOSPHORUS	Fruit	4760	4760	0.4689758575548939	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	PHOSPHORUS	Flower	885	4760	0.44165313354460856	
10	PIPERIDINE	Flower	--	2.5		
10	PIPERIDINE	Inflorescence	2.5	2.5		
0	POSTHUMULONE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	POSTHUMULONE	Inflorescence	--	--		
14	POTASSIUM	Fruit	20350	23500	0.49399185392198836	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	POTASSIUM	Flower	4371	23500	0.43388681236779714	
0	PREHUMULONE	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PREHUMULONE	Inflorescence	--	--		
0	PRELUPULONE	Fruit	--	--		
0	PRELUPULONE	Inflorescence	--	--		
1	PROCYANIDIN-B-1	Fruit	--	--		
1	PROCYANIDIN-B-2	Fruit	--	--		
2	PROCYANIDIN-B-3	Fruit	--	--		
4	PROCYANIDIN-B-4	Fruit	--	--		
27	PROCYANIDINS	Fruit	--	--		
0	PRODELPHINIDIN-B-3	Fruit	--	--		
0	PROLINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PROTEIN	Fruit	115000	240000	1.7494288187526115	
0	PROTEIN	Flower	21390	115000	-0.322653241355452	
1	PYRROLIDINE	Flower	--	1		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	PYRROLIDINE	Inflorescence	1	1		
176	QUERCETIN	Plant	--	--		
2	QUERCETIN-3'-GLUCOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	QUERCETIN-3-O-RUTINOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	QUERCETIN-3-O-RHAMNOSIDE	Fruit	--	--		
0	QUERCETIN-3-RHAMNODIGLUCOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	QUERCETIN-3-RHAMNOSIDE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
44	QUERCITRIN	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	RAFFINOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RESINS	Fruit	30000	300000	1	
15	RIBOFLAVIN	Fruit	10	10	1.0688416055697534	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
15	RIBOFLAVIN	Flower	2	10.1	0.9131195269275587	
87	RUTIN	Fruit	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
87	RUTIN	Leaf	2000	2000	-0.8803806294985641	
0	S-METHYLTHIO-2-METHYLBUTANOATE	Fruit	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	S-METHYLTHIO-4-METHYLPENTANOATE	Fruit	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
60	SELENIUM	Fruit	--	1.7	0.03537263271054239	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
60	SELENIUM	Flower	0.3	1.7	-0.5395561278850259	
0	SELIN-11-EN-OL	Fruit	29	29		
0	SELINA-3,7(11)-DIENE	Fruit	--	--		
0	SELINA-3,7-DIENE	Fruit	195	195		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	SELINA-4(14),7(11)-DIENE	Fruit	--	--		
1	SERINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	SILICON	Fruit	45	4.5	-0.5938225414098025	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	SILICON	Flower	0.8	4.5	-0.5633927701595145	
1	SODIUM	Fruit	47	47	-0.17949382924161622	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1	SODIUM	Flower	9	47	-0.5922029574106819	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SPATHULENOL	Fruit	10	10	-1	
10	SQUALENE	Plant	--	--		
1	STACHYOSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
12	STIGMASTEROL	Stem	--	--		
14	SUCROSE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	SUGARS	Flower	22320	120000	0.816496580927726	
0	T-CADINOL	Fruit	9	9		
0	TANNINS	Fruit	20000	40000	-0.45457956903500574	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	TETRADEC-9-EN-2-ON	Plant	--	--		
31	THIAMIN	Fruit	3.4	3.4	-0.24739706588262703	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	THIAMINE	Flower	0.6	3.4	0.4403764280895233	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	THREONINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	TIN	Fruit	22	22	-0.2908840013040884	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
4	TIN	Flower	4	22	0.9878291611472616	
2	TRANS-BETA-FARNESENE	Tissue Culture	--	--		
0	TRANS-ISOHUMULONE	Flower	--	--		
0	TRICYCLO-DEHYDRO-HUMULONE	Fruit	3000	3000		
0	TRICYCLODEHYDROISOHUMULONE	Fruit	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	TRICYCLOISOHUMULONE	Inflorescence	--	--		
1	TRIMETHYLAMINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
29	TRYPTOPHAN	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	TYROSINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	UNDECAN-2-AL	Essential Oil	--	--		
89	URSOLIC-ACID	Stem	--	--		
3	VALINE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VIRIDIFLORENE	Fruit	60	60		
1	VIRIDIFLOROL	Fruit	16	16		
0	WATER	Fruit	60000	120000	-2.8287641988252616	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	WATER	Flower	--	814000	0.012271942343700371	
4	XANTHOHUMOL	Fruit	15	15		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	XANTHOHUMOL	Strobilus	--	300		
4	XANTHOHUMOL	Resin, Exudate, Sap	--	78750		
77	ZINC	Fruit	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
77	ZINC	Flower	--	--		